V. COLUMBIA RIVER WATER MANAGEMENT GROUP

A. MEETINGS

The Columbia River Water Management Group met every month, except August. At each meeting, agency representatives reported briefly on various events which occurred during the preceding month in their respective areas of water management interest: weather and flood summaries and runoff forecasts by the NWS-River Forecast Center; streamflow by the US Geological Survey; snow accumulation/melt by the US Natural Resources Conservation Service; energy usage and outlook by the Bonneville Power Administration; water supply in irrigation reservoirs by the Bureau of Reclamation; flood control operations and reservoir regulation by Reclamation and the Corps of Engineers; water quality by the EPA, Corps, and other agencies; fisheries by the Corps, National Marine Fisheries Service and other agencies; project licensing by the Federal Energy Regulatory Commission; state activities by the member states; and additional comments by other organizations present. The Hydromet Data, Water Quality, and Forecast Committees, and the Depletions Task Force, also reported on their water management activities.

1. Meeting Summary

The following are highlights of significant items discussed or reported at the CRWMG meetings, not discussed elsewhere in this report.

! The need to update the 30-year averages on five or 10 year intervals, or extending the normal period to 35 or more years was discussed. Some of the unresolved issues include: are there any specific time periods, such as the inter-decadal oscillation, that might bias the normals, availability of software, availability of personnel familiar with the software and procedures, workload requirements, cost sharing, the availability of newer, more accurate correlation factors to estimate missing data, the time period recommended by the World Meteorological Organization, etc.

! In lieu of allowing access to hydrologic data and reports in a finite data base the Corps, and other agencies are releasing their data via their Internet web site.

! Agency budget cutbacks are forcing a reduction in the data collection network necessary for the management of the water resources of the Northwest. Most station cuts come long after budgets are set making it difficult for another agency to assume the funding of a discontinued gage. All agreed that the number of gages is at its minimum, and that a maximum warning time of the discontinuing the operation of a gage should have maximum advanced notice for other agencies to react.

! A post doctoral staff member of the University of Washington Department of Atmospheric Sciences has begun a major effort to study the effects of El Niño on the weather of the Northwest. One presentation has already been made to the Portland area water managers.

! The April forecast meeting was held in the conference area of the new Water Resources Center in Vancouver, Washington. This education center, on the bank of the Columbia River, contains displays that emphasize the importance of water in people's lives and is a popular tour spot for school science classes.

2. Snake River Plain Tour

The Water Management Group traveled to southern Idaho to visit sites in the middle Snake River plain that are important to the operation of the Columbia River water resource. The sites visited included, investigations of the ESA listed endangered snails, irrigation diversion facilities, irrigation return flow treatment, new powerhouse and river diversion construction, commercial

farming of trout and other fish, and record-high river flows on the upper Snake River and tributaries.

Upper Malad, the first project visited, is an Idaho Power project located at river-mile 1.0 on the Malad River between Bliss and Hagerman, Idaho. It was constructed in 1949, has a single 9.0 MW unit, and a hydraulic capacity of 800 cfs, the turbine, with a 124-ft head, is fed by a flume that is filled, roughly one mile upstream from the powerhouse, at a diversion dam on the Malad River and a smaller flume catching all the runoff from a small spring below the diversion dam. Typically, nearly all the water from the river is diverted through the powerhouse, but this year, with the near record discharges, approximately 2500 cfs was flowing in the river and 800 cfs in the flume. The narrow canyon through the columnar basalt made this flow an awesome cataract.

The inflow to Thousand Springs powerhouse, an Idaho Power project located on the Snake River about 10 river miles above the mouth of the Malad River, is provided by the springs that flow from the basalt cliffs and is collected in a half-mile long flume. The powerhouse, with a total hydraulic capacity of 560 cfs, has three units that with a 182-ft head produces a total output of 8.0 MW.

Within walking distance of Thousand Springs is the site of the study of the Mid-Snake Macro-invertebrate Study of five species of ESA-listed molluscs: Utah Valvata, Bliss Rapids, Banbury Springs Lanx, Idaho Springsnail, and the Snake River Physa snails. The study, designed to update the distribution data of endangered and threatened snails, and to describe their principle habitat associations, is investigating at the life-history of the snails and is looking for additional colonies outside this known habitat area.

The Clear Springs Fish Research Center is part of a multi-unit commercial enterprise that breeds, grows, harvests, and markets rainbow trout. The outlying Clear Springs units are all located within 15 miles of the Center because their only water supply from the springs in the basalt cliffs. Although Clear Springs has also studied the commercial rearing of salmon and sturgeon, the limited water supply from the springs means reduction in trout production to accommodate production of the other fish. The research Center contains laboratories for water quality, virology, genetics, biologics, nutrition, pathology and specific pathogenic infections. Spawning of brood stock in controlled by adjusting the light exposure to provide harvestable stock all year round rather than just in the spring. The brood stock are spawned only once a year and are used for only one or two spawns although they could be used for three to six years. The object of shorter spawning life is to incorporate the latest genetic improvements in the brood stock. There is some reuse of the water before it is treated and returned to the river.

The Cedar Draw Water Quality Research and Demonstration Project, operated by the Twin Falls Canal Company (TFCC), was designed to use an abandoned fish hatchery to remove sediment and nutrients from the irrigation flow being returned to the river. The hatchery raceways with their slow flows removes sediment and the fish rearing ponds with islands of bull rushes or other nutrient-hungry plants remove the nutrients. This facility removes 80% of the sediment and a Alarge@ percentage of the nutrients.

TFCC is also encouraging their customers to switch to overhead sprinklers, rather than ditch irrigation, to reduce erosion, and therefore, the cost of sediment removal. Unfortunately, beans, a major crop of the region, do not respond well to overhead irrigation. Currently, TFCC is spending 22% of their budget on water quality improvement of the return flow.

Milner Dam is a jointly owned project that diverts water into three separate irrigation canals as well as to the Milner powerhouses. On the south side of the Snake River the Twin Falls Canal receives 8 kcfs with 5 kcfs going into the 58 MW, two-units powerhouse, a mile downstream from the dam, and 3 kcfs flow into the irrigation system. On the north side of the river the Northside Canal withdraws 2.0 kcfs and the Gooding Canal withdraws another 800 cfs. In 1992 construction was completed on a new control structure and small generating unit at Milner Dam. The original spillway, built in 1914, is now blocked with a fuse plug, for emergency use only, while the new structure with five radial drum gates controls the forebay level as well as canal inflow. This small hydro unit has a hydraulic capacity of 200 cfs, an output of 830 KW, and, when the Milner spillway is not in use, provides minimum flows between the dam and the downstream powerhouse.

The Twin Falls project on the Snake River above the city of Twin Falls, added a new powerhouse in 1995 to complement the unit built in 1935. The intake for the first powerhouse was built into the saddle dam in the south channel of the Twin Falls thereby eliminating the Atwin@ of the scenic falls and forcing all spill over the north falls. The intake for the second powerhouse was

built adjacent to the first penstock in the south falls saddle dam. The old powerhouse generates 8.4 MW with a hydraulic capacity of 960 cfs while the Kaplan unit in the powerhouse generates 44.4 MW with 4.0 kcfs hydraulic capacity.

Shoshone Falls, three river miles below the Twin Falls project, diverts 950 cfs into a three-unit powerhouse to generate 12.5 MW at a head of 205 ft. At the time of this visit there was approximately 21 kcfs going over the falls, which are 52 ft higher than Niagara Falls.

3. Hydromet Data Committee

The Hydromet Data Committee (HDC) is a standing committee of the Columbia River Water Management Group that handles matters pertaining to hydrometeorological data. The work of this committee is directed mainly toward the coordination and development of the automated Columbia River Operational Hydromet Management System (CROHMS). To date, the major emphasis has been getting data into the CROHMS data bank facility and in the development of viewer-oriented data files for users of CROHMS data. Although emphasis will continue on entering data into the CROHMS data bank facility, a new emphasis is being applied to data transfers between computers, primarily in computer retrieval of data from the CROHMS data bank facility.

Tour group. (L-R) Dusica Jevremovic (FPC), Chan Modini (COE), Dala Walton (USBR), Russ Morrow (COE), Lisa von der Heydt (BPA), Ed Kim (COE), Ed Hubbard (USGS), Tim Brewer (IPC), Ted Day (USBR), Ron Abramovich (NRCS). Not shown Roger Ross (COE). The raceways of this former fish hatchery are now sediment settling ponds for the irrigation return flow before the water is gravity drained to nutrient-leaching ponds with their special vegetation. The final step is gravity flow back into the river.

Cedar Draw Research Project. Irrigation return flow enters the raceways, now settling ponds, from the supply manifold, then to the rearing ponds (background upper right) where high nutrient-using plants consume the chemicals before the water is released back into the river. This is an energy efficient continuous gravity system.

Thousand Springs Powerplant with collection flume and untapped springs to left of penstock. These springs are the outlet of the Lost River which disappears underground into the lava beds 100 miles to the northeast near Arco, Idaho. Note unique architectural style of powerhouse.

Upper Malad Powerplant flume diversion dam. River flow greater than the flume and powerhouse capacity is diverted back into the river channel. Both canal; overflow section and diversion dam gates are used to bypass excess flow. Note irrigation return flow coming off cliff.

Upper Malad Powerplant. Penstock leads from flume to powerhouse. Typically all the river flow is diverted into the powerhouse flume. At this time the river flow exceeds flume capacity by and estimated 3000 cfs. Flow in the Lower Malad flume is partially controlled by diversion structure.

MilnerDam spillway discharge. Four of the five spillway gates are being used to pass the river flow in excess of the capacity of the three irrigation canals (Gooding, Northside, and Southside canals) the and two powerhouses (at-site and downstream powerhouses) that are fed by this project.

MilnerDam stilling basin sill and downstream river section with the old spillway in the background. The at-site powerplant, which typically provides required minimum instream flow in the one mile down to the powerhouse, is in lower right of picture. The project is currently spilling about 17.5 kcfs.

Control structure on southside canal (one mile below Milner) controls both the flow into the downstream powerhouse, which is located just upstream and to the left of this structure, and the irrigation flow in the canal.

Milner Downstream Powerhouse. The Southside canal carries 8500 cfs from the Milner pool to feed the south side canal irrigators and the Milner downstream powerhouse, which has a capacity of 5.5 kcfs and 58.5 MW from the two units. Powerhouse inflow is controlled by the structure pictured above.

Committee activities this year consisted of coordinating activities between the various agencies, working on a station priority listing, discussing better methods of data distribution, and how to computer generate new hydromet station maps.

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4. Depletions Task Force

The Depletions Task Force did not meet this year due to other work priority.

5. Water Quality Committee

The Columbia River Water Management Group-Water Quality Committee (CRWMG-WQC) established in January 1994, has evolved into an organization that has progressed beyond dealing just with operational water quality topics and therefore is no longer directly associated with the CRWMG.

6. Forecast Committee

In their 1992 Fish and Wildlife Program, the Northwest Power Planning Council tasked Bonneville, Reclamation, and the Corps to "fund a review of the current runoff forecasting system, including (1) the potential for accuracy improvements of volume forecasts; (2) the potential for forecasting the shape of runoff; (3) the benefits of expanding telemetered snow monitoring system; and (4) resolution of the institutional barriers for the installation of hydrologic measurement sites in the existing and proposed wilderness areas." To ensure adequate incorporation of all responsible agencies, this review was to be carried out under the auspices of the CRWMG. In early 1992, the CRWMG authorized the Forecast Committee with multiple agency representation, to proceed with responding to the Council's request. The Garen forecast procedures were selected for the official procedure for forecasting Dworshak snowmelt runoff inflow. Effort will not be directed towards improving the Libby runoff forecasting procedure.

B. STATE ACTIVITIES

1. Oregon

With help from the Oregon legislature, work on the backlog of water right applications was completed on schedule and within budget and staff are now able to stay current with new. Completion was timely because of the enormous workload and concentration of resources currently being directed at the Oregon Plan for saving threatened or endangered fish.

Recently Oregon avoided a federal listing for coho on the coast by developing a plan that concentrates much of the state natural resources budget toward coho recovery. Efforts are now underway to extend the plan to steelhead which will extend aerial coverage in the Oregon Plan to most tributaries of the Columbia River.

Work is in progress on two major groundwater studies. The first is an investigation of the groundwater in the Deschutes Basin that covers an area that extending from Billy Chinook Reservoir to the divide above La Pine, Oregon, and should be completed around January 1998. The second study investigates the Willamette Basin and is two years from completion. Both studies are jointly funded between the Oregon Water Resources Department (OWRD) and the US Geological Survey. Additional investigations are scheduled to begin this fall in the South Coast and Klamath basins.